



SPATIAL DATA COOPERATIVE PROGRAM



Agenda

Shelley Broyles

- History of the Spatial Data Cooperative Program at NCTCOG
- List of remote sensing products offered through the SDCP & RIS
- How the cooperative pricing model works
- How to access and share data

James McLane

- Transportation use-cases

Q&A



Spatial Data Cooperative Program

2001 to 2006

2001 -

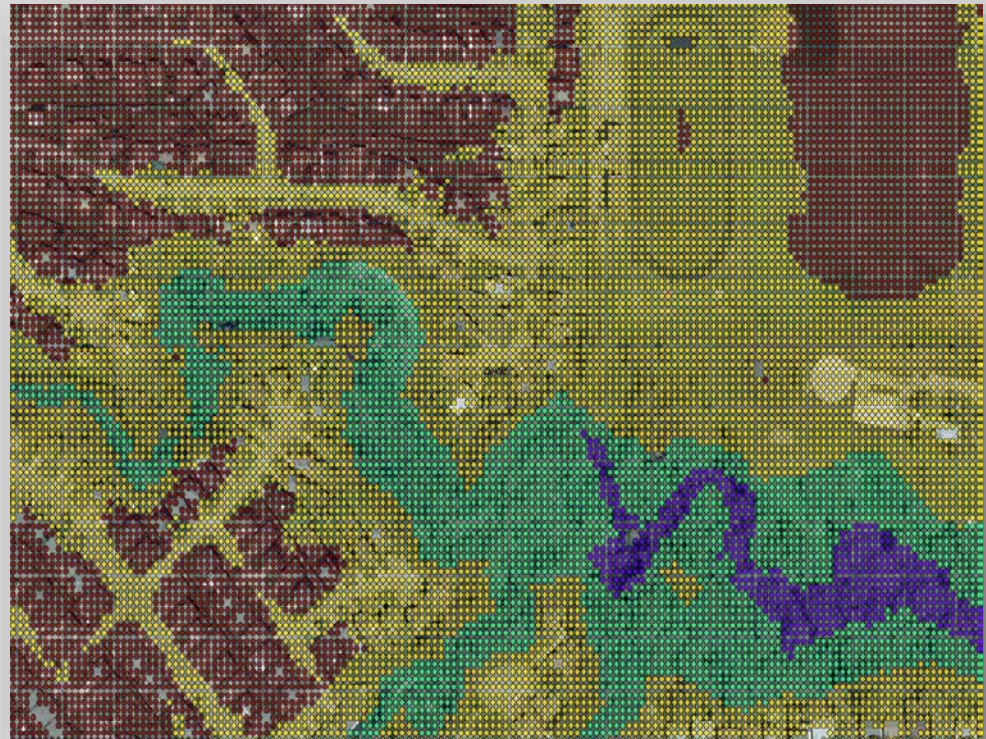
- 11 counties of 1' & 6" orthos
- 5 counties of LiDAR
- 75 participating entities

2003 -

- Orthos for entire region (12,800sm)
- Massive delivery

2005 -

- 8 counties of orthophotos
- Dropped the 1' option



2001 LiDAR

2007 to 2008



2007 Planimetrics

2007 –

- I took over the program
- Flew 16 counties of orthophotography & Auto-correlated surface
- 2D planimetrics
- TxDOT participation

2008 –

- Added even-year projects
- 15 participants

2009

Aerial Photography

Feature	Coverage Area (sq mi)	Not-to-Exceed Cost
<input type="checkbox"/> 3-inch Aerial Photography	<input type="text" value="0"/>	<input type="text" value="0"/>
<input type="checkbox"/> 6-inch Aerial Photography	<input type="text" value="0"/>	<input type="text" value="0"/>
Aerials Total		<input type="text" value="0"/>

Airborne LiDAR

Feature	Coverage Area (sq mi)
<p>Corridor: A corridor is an area of interest that follows a path, road, utility, or any right-of-way. Due to the requirement for specialized flight plans and 20-25% more ground control and are thereby more expensive than standard photography.</p> <p><input type="checkbox"/> If coverage area is a corridor, check here and leave all other options in this section blank. Corridor</p>	
<input type="radio"/> 0.5-Meter LiDAR	<input type="text" value="0"/>

[2D Planimetrics](#) (Aerial Photography required)

Feature [Hover over product name for specifications]	Coverage Area (sq mi)	Type	Not-to-Exceed Cost
<input type="checkbox"/> Discounted Bundle - Building footprints, road edges, parking lots, bridges, sidewalk <i>centerlines</i>	<input type="text" value="0"/>	<input type="radio"/> New <input type="radio"/> Updates	<input type="text" value="0"/>
<input type="checkbox"/> Discounted Bundle - Building footprints, road edges, parking lots, bridges, sidewalk <i>edges</i>	<input type="text" value="0"/>	<input type="radio"/> New <input type="radio"/> Updates	<input type="text" value="0"/>
<input type="checkbox"/> Building Footprints	<input type="text" value="0"/>	<input type="radio"/> New <input type="radio"/> Updates	<input type="text" value="0"/>
<input type="checkbox"/> Bridges	<input type="text" value="0"/>	<input type="radio"/> New <input type="radio"/> Updates	<input type="text" value="0"/>
<input type="checkbox"/> Driveways	<input type="text" value="0"/>	<input type="radio"/> New <input type="radio"/> Updates	<input type="text" value="0"/>
<input type="checkbox"/> Fences	<input type="text" value="0"/>	<input type="radio"/> New <input type="radio"/> Updates	<input type="text" value="0"/>
<input type="checkbox"/> Lake Edges	<input type="text" value="0"/>	<input type="radio"/> New <input type="radio"/> Updates	<input type="text" value="0"/>
<input type="checkbox"/> Parking Lots	<input type="text" value="0"/>	<input type="radio"/> New <input type="radio"/> Updates	<input type="text" value="0"/>

- First big program advancement
- SQL backend

Started with just orthophotography and 2D planimetrics.

Online Ordering Form

2013 –

- Partnered with Woolpert
- Added preliminary and final WMS deliverable

2014 –

- Added annual LiDAR option

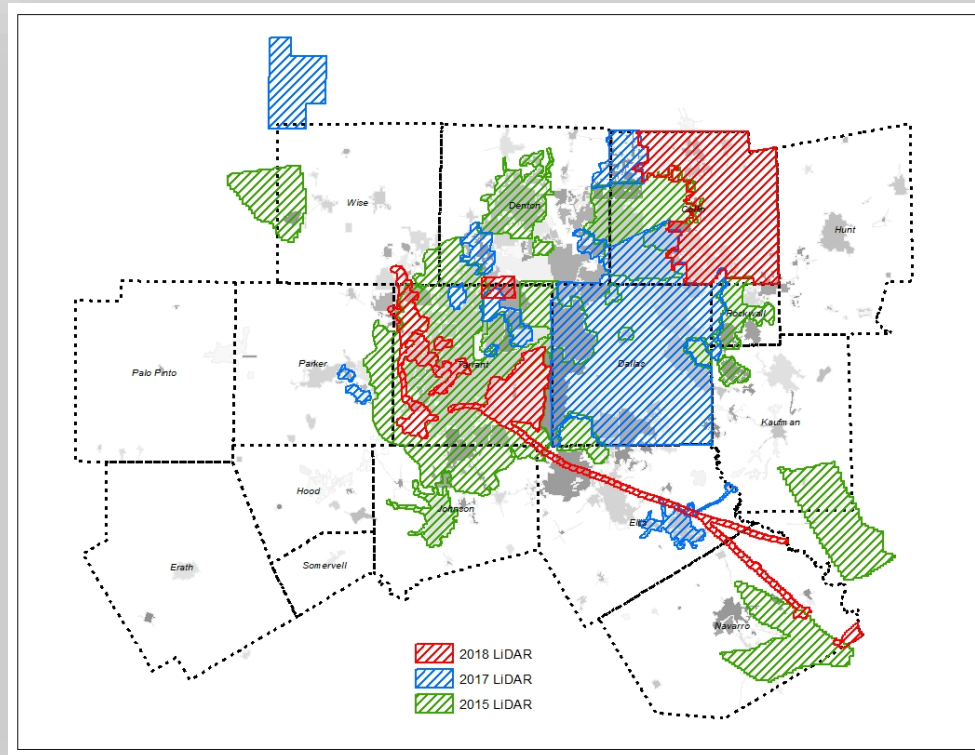
2015 –

- Added 3" orthophotography

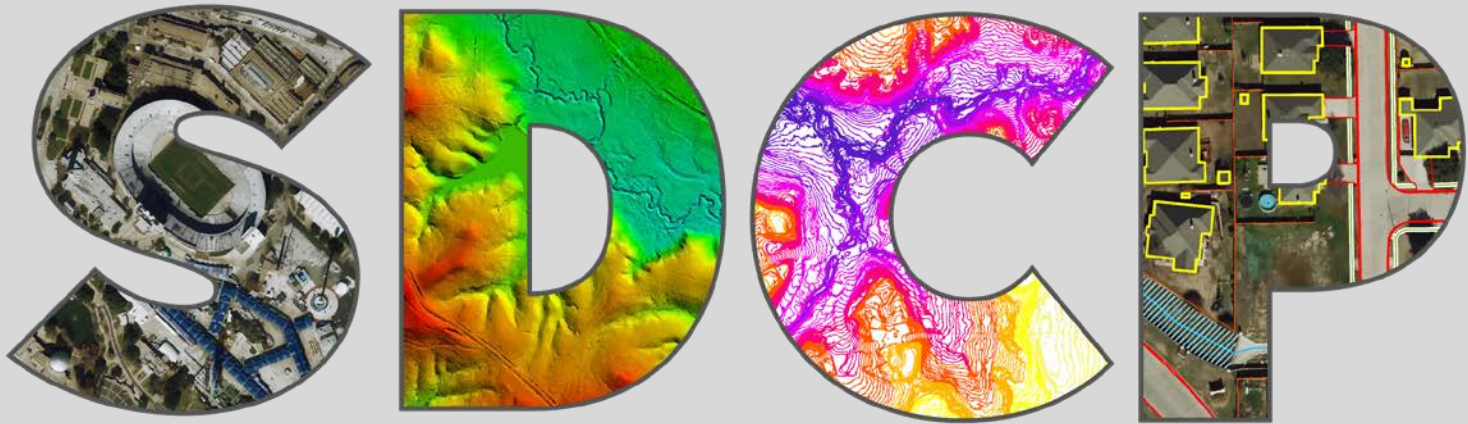
2017 –

- Big changes!
- Flew 14,000 sm of orthophotography
- TxDOT/Transportation participated
- Added pushbroom sensor option
- Cloud delivery
- Embedded order form into new webpage
- Rebranded the program

2013 to 2018



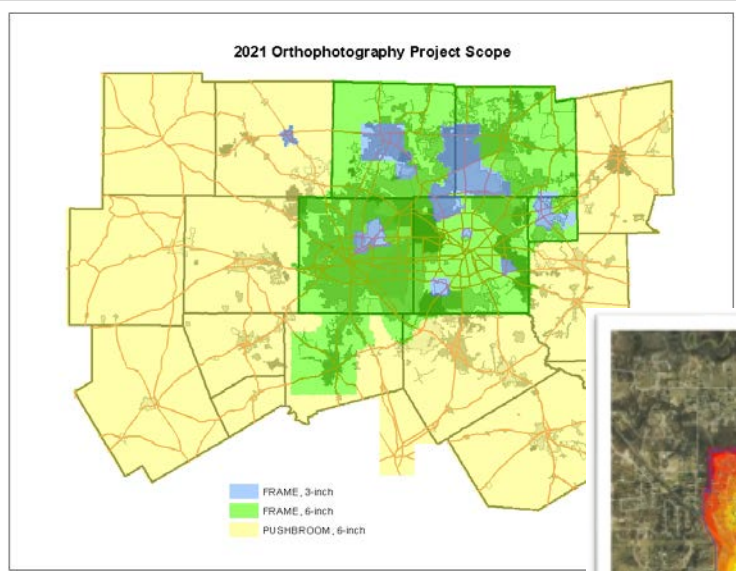
3 Years of LiDAR



Spatial Data Cooperative Program

Program website: [https://www.nctcog.org/regional-data/spatial-data-cooperative-program-\(sdcp\)](https://www.nctcog.org/regional-data/spatial-data-cooperative-program-(sdcp))

2018 to Present

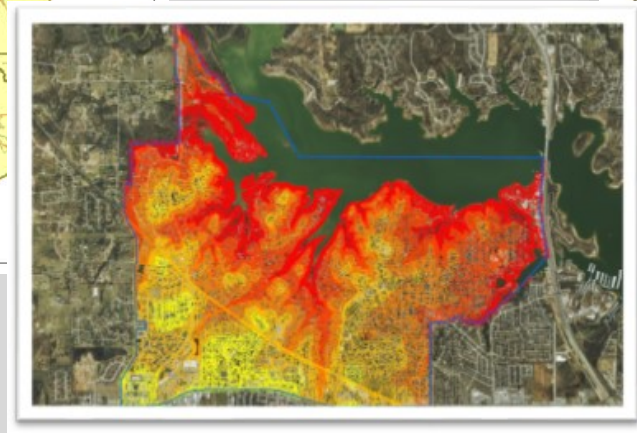


2018 –

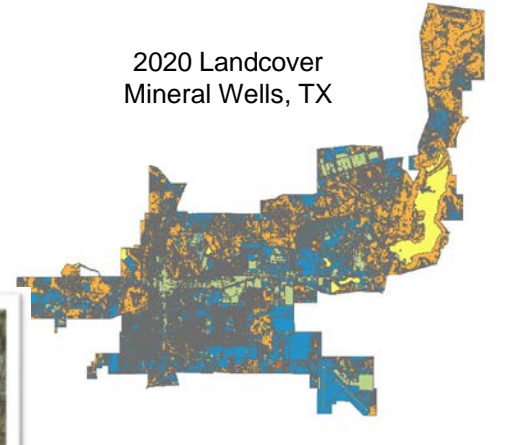
- added Fugro as 2nd vendor
- Added more derivatives

2019 –

- Began creating derivative data in-house



2020 LiDAR



2021 –

- Large ortho & LiDAR projects
- Added Nearmap to offer recurring ortho subscription



SDCP Products

Remote Sensing Data

- [Orthophotography](#)
- [LiDAR](#)



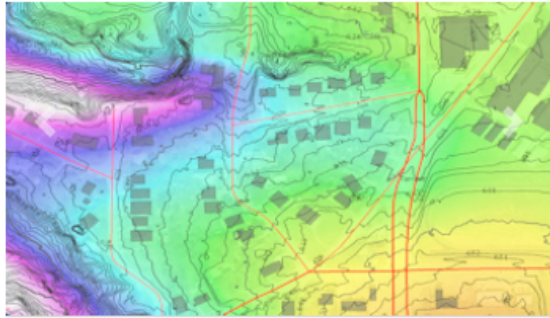
Derivative Products

- Contours
- 2D Planimetrics
- Impervious Surface
- Landcover/Landuse
- 3D Planimetrics



In-House Derivative Products

NCTCOG Multiyear Contours
(2009-2019)



NCTCOG has developed a layer of 2' cartographic-quality digital elevation contours. It uses the the most recent lidar and digital elevation model data available for a given area.

- In 2021, RIS released the first in-house derivative product – Multiyear 2' Contours
- RIS is currently working on a multiyear building footprint layer
- More to come!

Nearmap Orthophotography & Obliques

In 2021, RIS partnered with Nearmap to offer public agencies a subscription option for orthophotography and obliques.

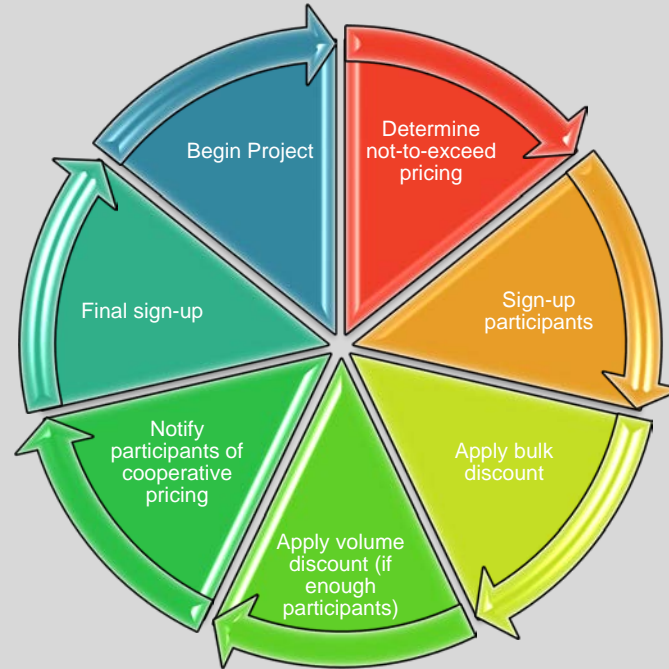


	Traditional Orthophotography	Nearmap Orthophotography
Aerial Frequency	On demand (usually leaf-off)	2-3 times per year (one leaf-off flight)
Turnaround Time	6 months	1 month
Web Mapping Service	Yes	Yes
Hardcopy Delivery	Yes	Yes (for 1 flight)
Data Ownership	NCTCOG owned	Licensed from Nearmap
Cost	\$185-350/sq mi (non-cooperative years) \$50-315/sq mi (cooperative years) 20 sq mi in 2021 cooperative: 6" = \$1900 3" = \$6200	Annual subscription cost based on entity size 20 sq mi: <3" = \$2500 per year
Level of Control over Final Product	High	None
Positional Accuracy (RMSE)	< 0.122 m (0.4 ft)	1-1.5 m (3-5 ft)
Resolution	6-inch, 3-inch	< 3-inch
4th Band (NIR)	Yes	No



THE COOPERATIVE MODEL

The Annual Cooperative Process



Bulk Discount

- Negotiated during the RFP Process
- Economies of Scale

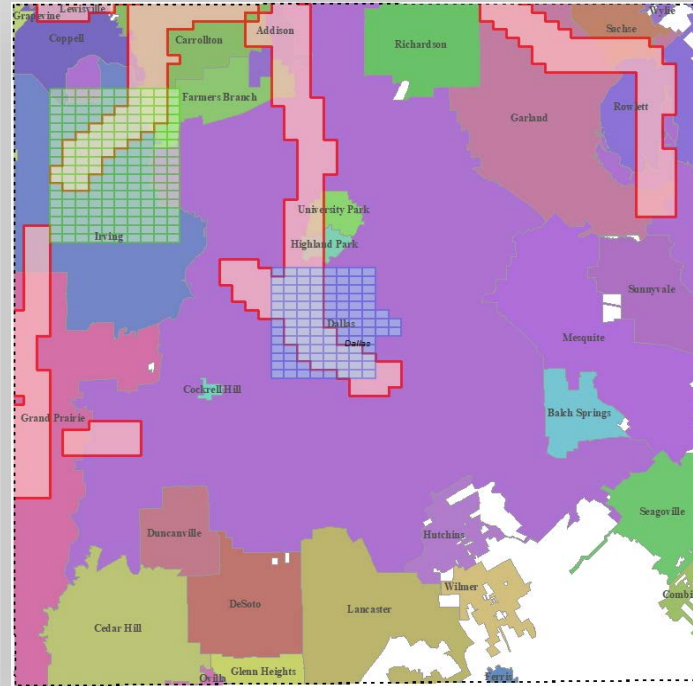
New Acquisition Orthophotography Pricing (square mile)

The prices below are the bulk prices that have been negotiated with the vendor. They do not include the additional cost-sharing discounts that occur during larger region-wide "cooperative" flights. All projects require a 2 square mile minimum.

	2-250	251-500	501-1000	1001-5000	5001-10,000	>10,000
3" Frame Orthophotography	\$385.00	\$357.50	\$330.00	\$302.50	\$247.50	\$236.50
6" Frame Orthophotography	\$192.50	\$154.00	\$143.00	\$132.00	\$121.00	\$110.00
6" Pushbroom Orthophotography	\$137.50	\$121.00	\$103.40	\$93.50	\$85.80	\$80.30
6" Oblique Imagery	\$770.00	\$341.00	\$313.50	\$302.50	\$291.50	\$275.00

Volume Discount

- Regional Participants
- County Participants
- City Participants
- Special Districts
- Private Interest





How Participants Order

JOIN THE COOPERATIVE!



How to Access the Data



Important Websites

[DFWMaps](#)

[The](#)
[Marketplace](#)



Contractor's Licensing Agreement

Required when sharing purchased data with another consultant for a shared project.

[SDCP FAQ](#)



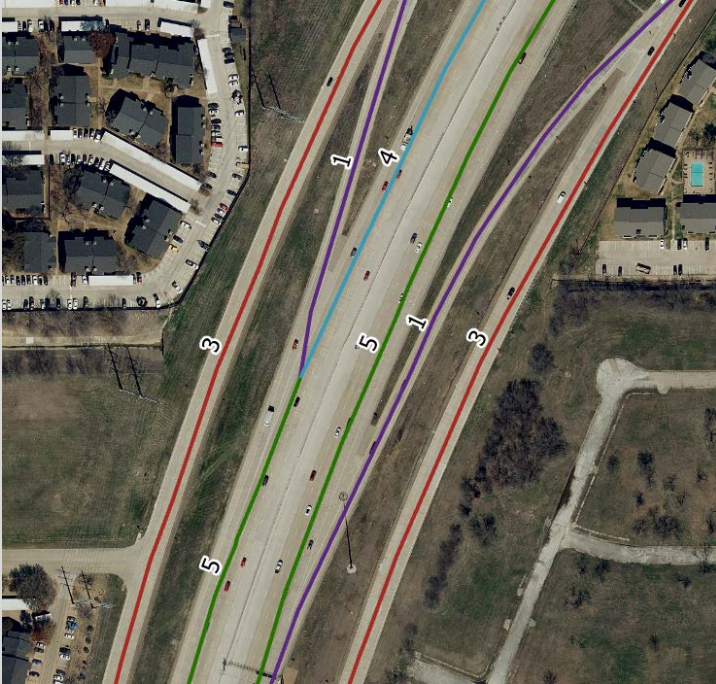
Transportation Use- Cases

Basemaps



- Orthos give context to maps
- Most widespread current use
- Planimetrics may add more nuance/legibility to certain basemaps

Digitization/Verification



- Verification of information in other datasets
- Digitization of certain features not adequately captured in other datasets
- Roadway Networks
- Transit Features
- Trail/Bikeway Features

Bicycle-Pedestrian



- Verification of existing off-street facilities
- Tree canopy as input to comfort analyses
- Sidewalk connectivity/network analysis (purchase underway)

Roadway ROW/Footprint Analyses



- Existing roadway width relative to right-of-way
- Understanding capacity for either widening the roadway or using excess ROW for other modes
- Understanding impact of widening projects on buildings
- Input to least-cost analyses
- More refined cost estimates

Environmental Impacts



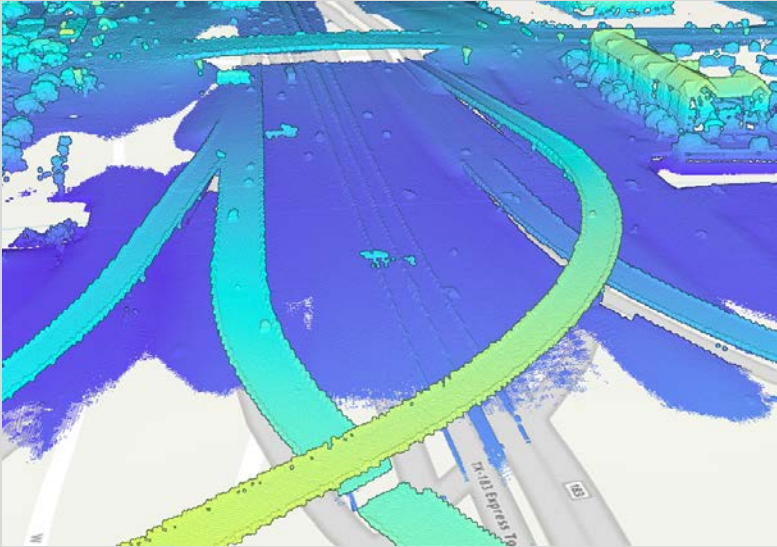
- Quantifying impact of the transportation system's impervious surfaces on the natural environment
- Runoff impacts
- System resiliency
- Mitigation needs

Understanding Spatial Distribution



- Transportation works with “activity” data in relatively large geographies (Block Groups, Tracts, TAZs, etc.)
- Building footprints can give more nuance to analyses that need to know where within these geographies that activities are occurring

LiDAR and 3D Analyses



- Investigating possibilities
- May be useful for concept-level planning for facilities on structure
- Complex interchanges
- High-speed rail
- Hyperloop
- Managed lanes

Questions?

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